2.1 States of Matter and The Particle Model of Matter Inquiry and Discussion Sheet

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is matter(2 important features)

It has\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and takes up\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is matter made of?
2. What are five states of matter?
3. Draw a diagram and description of the Particle Model of Matter (diagram from the applet)
4. From the particle model interactive, describe properties of solids, liquids and gases.

Solids:

Liquids:

Gases:

**States of Matter- Student Guide for virtual lab:** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Start:**  1.

Google: PhET states of matter

2. Click on the first link

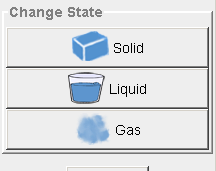
3. Click on the  button.

4.  Explore the simulation. Be sure to click on everything.

Write two things you think the simulation is designed to help you learn.

a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Experiment with the

Choose one of the materials from the ***Molecules*** box – **neon, oxygen, argon or water**

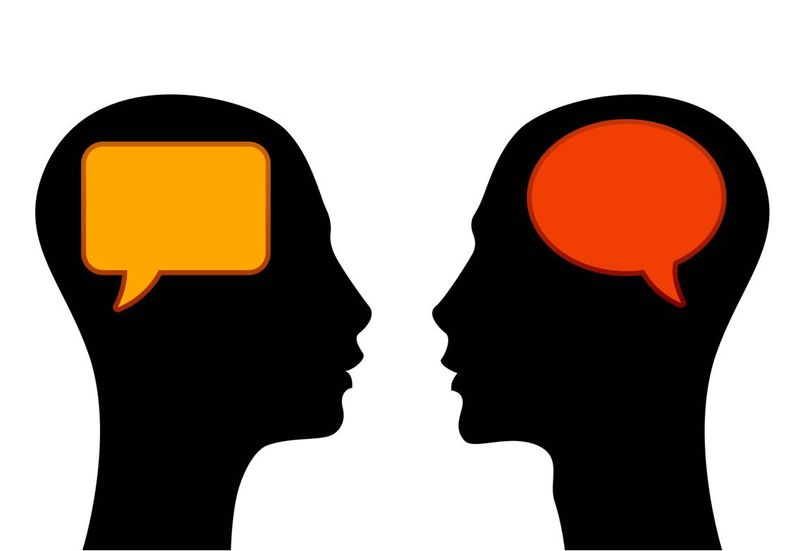
Click on the solid, liquid and gas picture buttons until you can see the differences.

6.  Draw a picture to represent the atoms or molecules during each state**.**

|  |  |  |
| --- | --- | --- |
| Solid | Liquid | gas |

7. Go to the second tab up at the top of your screen. 

**Observations**: 

 Be sure to watch and discuss what is happening to the thermometer and the pressure gauge.

Move the arrow up and down.

Draw arrows ( ) to show what you observed.

|  |  |  |
| --- | --- | --- |
| Temperatue:  ( ) | Speed of molecules  ( ) | Pressure:  ( ) |

When we add energy: ,

|  |  |  |
| --- | --- | --- |
| Temperature:  ( ) | Speed of molecules:  ( ) | Pressue:  ( ) |

When we take away energy: ,

What happened to the **speed** and **arrangement** of the molecues as heat was added?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

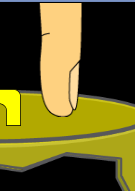
Frame: When heat is added, we noticed that the particles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When heat was taken away, we noticed that the particles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

You have finished the lesson! Please have the teacher check the box!

More to Explore:

 and  There are some interesting features in this simulation.

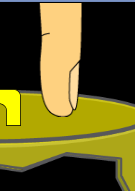
Experiment with them to find out how they “move” and what they do. When you think you have a good idea of how to use each feature, go on to the next step.

Draw arrows ( ) to show what happens.

Use the  to **add matter**: (you choose the number of pumps! \_\_\_\_\_\_)

|  |  |
| --- | --- |
| Temperature:  ( ) | Pressure:  ( ) |

Use the  to **reduce the space** in the container ( decrease the volume).

|  |  |
| --- | --- |
| Temperature:  ( ) | Pressure:  ( ) |

Write about two things you discovered:

#2

#1